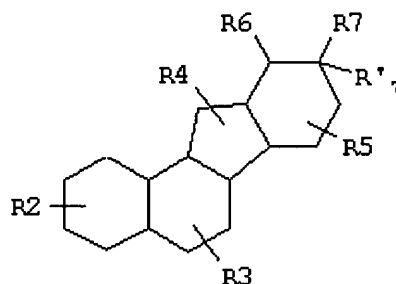


IN THE CLAIMS

1-37. (cancelled)

38. (currently amended) An *in vitro* method for inhibiting mitotic cell proliferation in a cell, comprising contacting the cell *in vitro* with ~~The method of claims 1, 27, 28, or 36, wherein the composition comprises a compound represented in the general formula (I), or unsaturated forms thereof, or pharmaceutically acceptable salts thereof, and/or seco-, nor- or homo-derivatives thereof:~~



Formula I

wherein, as valence permits,

R₂, R₃, R₄, and R₅ independently for each occurrence, represent one or more substituents selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or -(CH₂)_m-R₈;

R₆, R₇, and R'₇ are absent or represent, independently for each occurrence, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or -(CH₂)_m-R₈, or

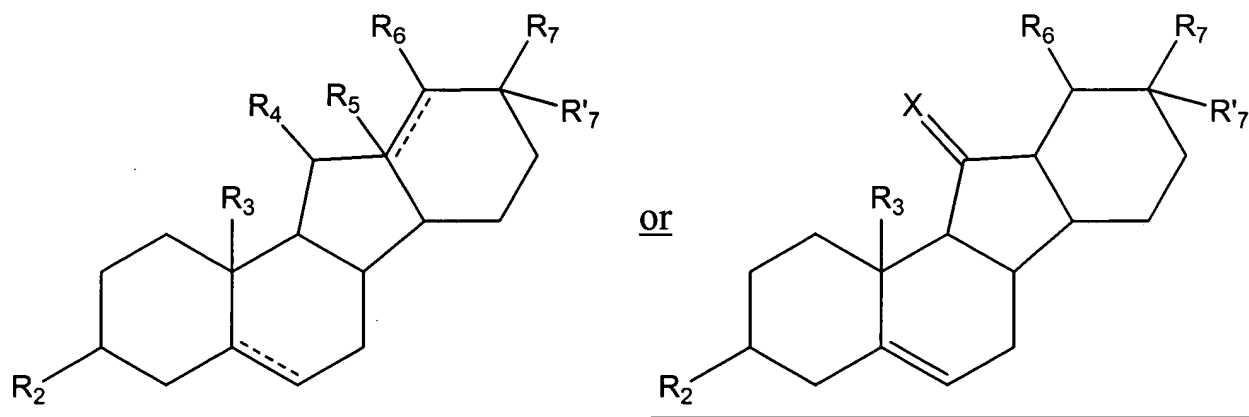
R₆ and R₇, or R₇ and R'₇, taken together form a ring or polycyclic ring;

with the proviso that at least one of R_6 , R_7 , or R'_7 is present and includes a primary or secondary amine;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

m is an integer in the range 0 to 8 inclusive.

39. (currently amended) An *in vitro* method for inhibiting mitotic cell proliferation in a cell, comprising contacting the cell *in vitro* with ~~The method of claims 1, 27, 28, or 36 wherein the composition comprises a compound represented in the general formula (II), or unsaturated forms thereof, or pharmaceutically acceptable salts thereof, and/or seco-, nor- or homo-derivatives thereof:~~



Formula II

wherein, as valence permits,

R_2 and R_4 , independently for each occurrence, ~~are represent one or more substituents~~ selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, $=O$, $=S$, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R_3 , and R_5 independently for each occurrence, ~~is represent one or more substituents~~ selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R₅, independently for each occurrence, is absent or represents a substituent selected from

hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or -(CH₂)_m-R₈;

R₆, R₇, and R'₇ are absent or represent, independently, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or -(CH₂)_m-R₈, or

R₆ and R₇, or R₇ and R'₇, taken together form a ring or polycyclic ring,

with the proviso that at least one of R₆, R₇, or R'₇ is present and includes a primary or secondary amine;

R₈ represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

X represents O or S; and

m is an integer in the range 0 to 8 inclusive.

40. (cancelled)

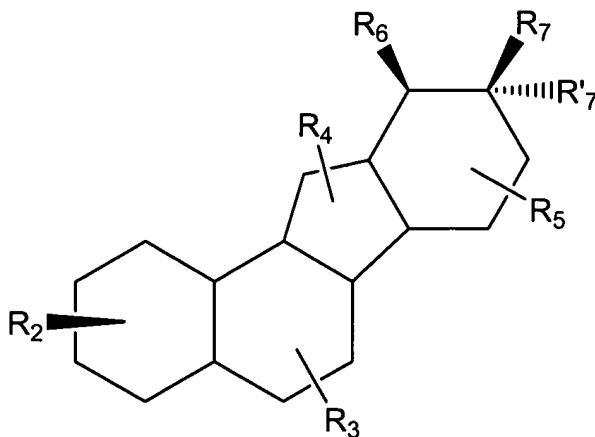
41. (currently amended) The method of any one of claims 1, ~~15-17, 20, 22, 27-28, 36, and 38-39~~, wherein the ~~cancer is a basal cell~~ is a hyperproliferative cell ~~carcinoma, medulloblastoma, squamous cell carcinoma, carcinosarcoma, adenocystic carcinoma, epidermoid carcinoma, nasopharyngeal carcinoma, renal cell carcinoma, papilloma, or an epidermoidoma.~~

42. (new) The method of claim 41, wherein the hyperproliferative cell is a cancer cell.

43. (new) The method of claim 42, wherein the cancer is a basal cell carcinoma, medulloblastoma, squamous cell carcinoma, carcinosarcoma, adenocystic carcinoma, epidermoid carcinoma, nasopharyngeal carcinoma, renal cell carcinoma, papilloma, or an epidermoidoma.

44. (new) The method of any one of claims 38-39, wherein the compound is jervine or cyclopamine.

45. (new) The method of any one of claims 38-39, wherein the compound inhibits hedgehog-mediated signal transduction with an ED₅₀ of 1 mM or less.
46. (new) The method of any one of claims 38-39, wherein the compound inhibits hedgehog-mediated signal transduction with an ED₅₀ of 1 μM or less.
47. (new) The method of any one of claims 38-39, wherein the compound inhibits hedgehog-mediated signal transduction with an ED₅₀ of 1 nM or less.
48. (new) The method of any one of claims 38-39, wherein R₂ and R₃, independently for each occurrence, are -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R₈.
49. (new) The method of any one of claims 38-39, wherein R₄, independently for each occurrence represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R₈.
50. (new) The method of any one of claims 38-39, wherein R₆, R₇, and R'₇, independently for each occurrence, represent hydrogen, alkyls, alkenyls, alkynyls, amines, imines, amides, carbonyls, carboxyls, carboxamides, ethers, thioethers, esters, or -(CH₂)_m-R₈.
51. (new) The method of any one of claims 38-39, wherein R₇, and R'₇ taken together form a furanopiperidine, such as perhydrofuro[3,2-b]pyridine, a pyranopiperidine, a quinoline, an indole, a pyranopyrrole, a naphthyridine, a thiofuranopiperidine, or a thiopyranopiperidine.
52. (new) The method of claim 38, wherein the compound is represented in Formula (Ia), or unsaturated forms thereof, or pharmaceutically acceptable salts thereof:



Formula Ia

wherein, as valence permits,

R_2 , R_3 , R_4 , and R_5 independently for each occurrence, represent one or more substituents selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R_6 , R_7 , and R'_7 are absent or represent, independently for each occurrence, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$, or

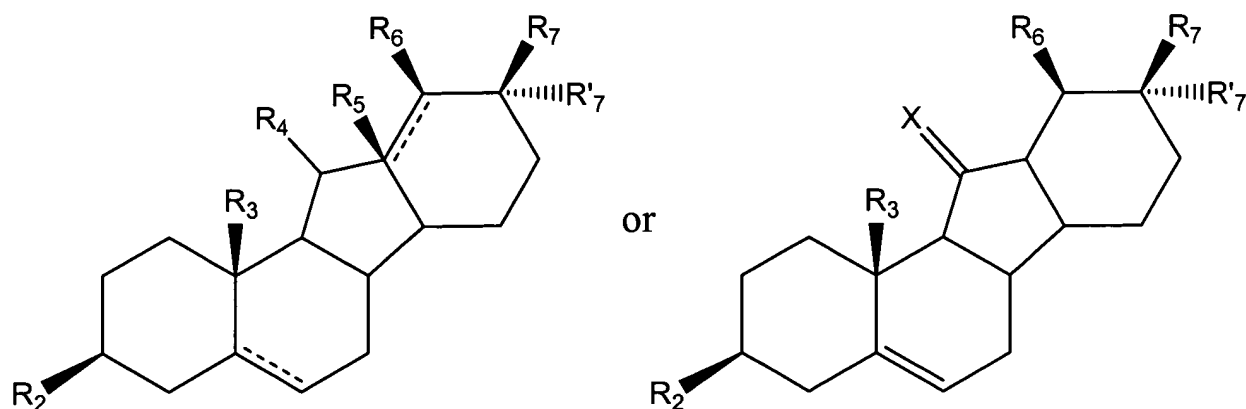
R_6 and R_7 , or R_7 and R'_7 , taken together form a ring or polycyclic ring;

with the proviso that at least one of R_6 , R_7 , or R'_7 is present and includes a primary or secondary amine;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

m is an integer in the range 0 to 8 inclusive.

53. (new) The method of claim 39, wherein the compound is represented in Formula (IIa), or unsaturated forms thereof, or pharmaceutically acceptable salts thereof:



Formula IIa

wherein, as valence permits,

R₂ and R₄, independently for each occurrence, are selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R₃, independently for each occurrence, are selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R₅, independently for each occurrence, is absent or is selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R₆, R₇, and R'₇ are absent or represent, independently, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$, or

R₆ and R₇, or R₇ and R'₇, taken together form a ring or polycyclic ring,

with the proviso that at least one of R_6 , R_7 , or R'_7 is present and includes a primary or secondary amine;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

X represents O or S; and

m is an integer in the range 0 to 8 inclusive.